

## Claims

I claim:

1. A method for simulating motion of a static 3D physical object in a static scene, comprising:

acquiring a 3D graphics model of the 3D physical object and the scene;  
registering a projector with the 3D physical object, the scene and the 3D graphics model;  
segmenting the 3D graphics model into a plurality of parts;  
editing each of the parts with graphics authoring tools to reflect a desired appearance and virtual motion of each part;  
rendering the edited parts in real-time as an animation video; and  
illuminating the 3D physical object and the scene with the animation video to give the 3D physical object and the scene the desired appearance and virtual motion.

2. The method of claim 1 further comprising:

editing view-independent texture and view-dependent material characteristics of the 3D graphics model to reflect the desired appearance.

3. The method of claim 1 further comprising:

editing, for each of the parts, independent rotation and translation parameters to ascribe different virtual motions to the plurality of parts.

4. The method of claim 1 wherein the rendering the parts considers a user location and a location of a virtual light.

5. The method of claim 4 further comprising:  
adding motion blur and moving shadows.
6. The method of claim 4 further comprising:  
adding reflections and global visual effects.
7. The method of claim 1 further comprising:  
enforcing a consistent relationship between motion of different parts.

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